

We Claim:

1. A polyvinyl chloride (PVC) fiber for artificial hair having an arithmetic mean roughness R_a of $0.18\text{-}0.38\mu\text{m}$ and a maximum height R_y of $0.5\text{-}3.5\mu\text{m}$ along a longitudinal direction, specified by JIS B 0601, said PVC fiber being manufactured by melt spinning a PVC resin composition with a nozzle, wherein said nozzle has a nozzle hole having a diameter D and a land length L , and a nozzle leading portion having a cone angle, and wherein a ratio of L/D is $1\text{-}3$, a height of the nozzle leading portion is at least 4mm , and the cone angle is $20^\circ\text{-}90^\circ$.

2. The PVC fiber as claimed in claim 1 having a section specified by $(L \cdot M_{\max})/S$ of $4.2\text{-}7.0$, wherein $M_{\max}(\text{mm})$ is the maximum line segment, $S(\text{mm}^2)$ is a sectional area, and $L(\text{mm})$ is a length of an outer circumference.

3. The PVC fiber as claimed in claim 1 or 2, wherein said PVC resin composition contains 100 parts by mass of a PVC resin, (a) $0.3\text{-}3.0$ parts by mass of a higher fatty acid ester lubricant, (b) $0.3\text{-}1.5$ parts by mass of a polyethylene lubricant, with a mixing ratio (a)/(b) of $0.5\text{-}4$.

4. The PVC fiber as claimed in any one of claims 1-3, wherein said PVC resin composition contains $0.2\text{-}5.0$ parts by mass of an inorganic thermal stabilizer selected from a hydrotalcite or zeolite.

5. A method of manufacturing a polyvinyl chloride (PVC) fiber for artificial hair, comprising the steps of:

melt spinning a PVC resin composition with a nozzle having a nozzle hole of a diameter D and a land length L , and a nozzle leading portion having a cone angle, wherein a ratio of L/D is $1\text{-}3$, a height of the nozzle leading portion is at least 4mm , and the cone angle is $20^\circ\text{-}90^\circ$; and

discharging the PVC resin composition with an amount of $65\text{-}165\text{g/h}$ per nozzle.

6. The method as claimed in claim 5, wherein said PVC resin composition contains 100 parts by mass of a PVC resin, (a) 0.3-3.0 parts by mass of a higher fatty acid ester lubricant, and (b) 0.3-1.5 parts by mass of a polyethylene lubricant, with a mixing ratio (a)/(b) of 0.5-4.

7. The method as claimed in claim 5 or 6, wherein said PVC resin composition contains 0.2-5.0 parts by mass of an inorganic thermal stabilizer selected from a hydrotalcite or zeolite.

8. The method as claimed in any one of claims 5-7, further comprising the step of discharging the PVC resin composition with an amount of 80-150g/h.

9. A melt spinning apparatus for manufacturing a polyvinyl chloride fiber for artificial hair, having a nozzle, said nozzle comprising:

a nozzle hole having a diameter D and a land length L; and

a nozzle leading portion having a cone angle,

wherein a ratio of L/D is 1-3, a height of the nozzle leading portion is at least 4mm, and the cone angle is 20°-90°.